

1           **Clean Version Of The Pending Claims Under 37 C.F.R. § 1.121(c)(3):**

2           Claims 1-42 now pending, are submitted below in accordance with 37  
3           C.F.R. §1.121(c)(3), which presents a clean version of the entire set of pending  
4           claims.

5           **1. (Once Amended)** A method comprising:

6           identifying, in response to a search query, first multimedia objects having  
7           an associated keyword that matches a keyword in the search query and second  
8           multimedia objects that have content features similar to those of the first  
9           multimedia objects;

10          presenting the first and second multimedia objects to a user;

11          monitoring feedback from the user as to which of the first and second  
12          multimedia objects are relevant to the search query; and

13          annotating one or more of the multimedia objects, which are deemed  
14          relevant by the user, with the keyword.

15           **2. A method as recited in claim 1, further comprising:**

16          maintaining associations between the keywords and the multimedia objects,  
17          the associations being weighted to indicate how relevant the keywords are to the  
18          multimedia objects; and

19          adjusting the weights of the associations based on the user's feedback.

20           **3. A method as recited in claim 2, wherein the adjusting comprises**  
21          increasing a weight of an association between the keyword and a particular  
22          multimedia object that is deemed relevant by the user.

1       4. A method as recited in claim 2, wherein the adjusting comprises  
2 decreasing a weight of an association between the keyword and a particular  
3 multimedia object that is deemed irrelevant by the user.

4

5       5. A method as recited in claim 4, further comprising removing the  
6 keyword from the particular multimedia object in an event that the weight is less  
7 than a threshold value.

8

9       6. A method as recited in claim 1, further comprising training how the  
10 first and second multimedia objects are identified based on the user's feedback.

11

12       7. A method as recited in claim 1, further comprising refining the  
13 search to identify additional multimedia objects that contain content features  
14 similar to those of the multimedia objects indicated by the user as being relevant.

15

16       8. A method as recited in claim 1, wherein the multimedia objects  
17 comprise one of digital images, video objects, and audio objects.

18

19       9. A computer readable medium having computer-executable  
20 instructions that, when executed on a processor, perform the method as recited in  
21 claim 1.

22

23       10. A method comprising:

1           iteratively retrieving multimedia objects from a database and monitoring  
2 feedback from a user as to whether the multimedia objects are relevant to a  
3 keyword in a search query; and

4           annotating the multimedia objects based on the user's feedback, with the  
5 keyword.

6

7           **11.** A method as recited in claim 10, wherein the retrieving comprises  
8 using content-based information retrieval to retrieve the multimedia objects.

9

10          **12.** A method as recited in claim 10, wherein the retrieving comprises  
11 using both content-based information retrieval and semantic-based information  
12 retrieval to retrieve the multimedia objects.

13

14          **13.** A method as recited in claim 10, wherein the monitoring comprises  
15 monitoring both feature-based relevance feedback and semantic-based relevance  
16 feedback.

17

18          **14.** A method as recited in claim 10, wherein the annotating is hidden  
19 from the user.

20

21          **15.** A method as recited in claim 10, wherein the annotating comprises:  
22           in an event that a particular multimedia object is deemed relevant by the  
23 user and is not yet annotated with the keyword, adding the keyword to the  
24 particular multimedia object; and

1           in an event that the particular multimedia object is deemed relevant by the  
2 user and is already annotated with the keyword, strengthening an association  
3 between the keyword and the particular multimedia object.

4

5           **16.** A method as recited in claim 10, wherein the annotating comprises:  
6           in an event that a particular multimedia object is deemed irrelevant by the  
7 user and is already annotated with the keyword, weakening an association between  
8 the keyword and the particular multimedia object.

9

10          **17.** A computer readable medium having computer-executable  
11 instructions that, when executed on a processor, perform the method as recited in  
12 claim 10.

13

14          **18.** A method comprising:  
15           retrieving multimedia objects according to a content-based retrieval  
16 process;  
17           presenting the multimedia objects to a user;  
18           monitoring feedback from the user as to which of the multimedia objects  
19 are relevant; and  
20           annotating one or more of the multimedia objects based on the user's  
21 feedback, with a keyword.

22

23          **19.** A method as recited in claim 18, wherein the monitoring comprises  
24 monitoring both feature-based relevance feedback and semantic-based relevance  
25 feedback.

1  
2       **20.** A method as recited in claim 18, wherein the annotating is hidden  
3 from the user.

4  
5       **21.** A method as recited in claim 18, wherein the annotating comprises:  
6              in an event that a particular multimedia object is deemed relevant by the  
7 user and not yet annotated with the keyword, adding the keyword to the particular  
8 multimedia object; and

9              in an event that the particular multimedia object is deemed relevant by the  
10 user and is already annotated with the keyword, strengthening an association  
11 between the keyword and the particular multimedia object.

12  
13       **22.** A method as recited in claim 18, wherein the annotating comprises:  
14              in an event that a particular multimedia object is deemed irrelevant by the  
15 user and is already annotated with the keyword, weakening an association between  
16 the keyword and the particular multimedia object.

17  
18       **23.** A method as recited in claim 18, wherein the annotating comprises:  
19              in an event that a particular multimedia object is deemed irrelevant by the  
20 user and is already annotated with the keyword, removing the keyword from the  
21 particular multimedia object.

22  
23       **24.** A computer readable medium having computer-executable  
24 instructions that, when executed on a processor, perform the method as recited in  
25 claim 18.

1  
2       **25.** A method comprising:

3              maintaining associations between keywords and multimedia objects, the  
4              associations being weighted to indicate how relevant the keywords are to the  
5              multimedia objects; and

6              retrieving a set of one or more multimedia objects for presentation to a user;

7              monitoring feedback from the user as to which of the multimedia objects  
8              are relevant; and

9              adjusting the weights of the associations based on the user's feedback.

10  
11       **26.** A method as recited in claim 25, wherein the retrieving comprises  
12              using content-based information retrieval to retrieve the multimedia objects.

13  
14       **27.** A method as recited in claim 25, wherein the retrieving comprises  
15              using both content-based information retrieval and semantic-based information  
16              retrieval to retrieve the multimedia objects.

17  
18       **28.** A method as recited in claim 25, wherein the monitoring comprises  
19              capturing both feature-based relevance feedback and semantic-based relevance  
20              feedback.

21  
22       **29.** A method as recited in claim 25, wherein the adjusting comprises  
23              increasing the weights of the associations between the keywords and the  
24              multimedia objects that are deemed relevant by the user.

1           **30.** A method as recited in claim 25, wherein the adjusting comprises  
2 decreasing the weights of the associations between the keywords and the  
3 multimedia objects that are deemed irrelevant by the user.

4

5           **31.** A computer readable medium having computer-executable  
6 instructions that, when executed on a processor, perform the method as recited in  
7 claim 25.

8

9           **32.** A system comprising:  
10           an information retrieval unit to retrieve multimedia objects from a database  
11 based on a search query;  
12           a relevance feedback unit to capture a user's feedback as to whether the  
13 multimedia objects are relevant to the search query; and  
14           an annotation unit to annotate, with a keyword, the multimedia objects  
15 based on the user's feedback.

16

17           **33.** A system as recited in claim 32, wherein the search query comprises  
18 a keyword-based search query having one or more keywords.

19

20           **34.** A system as recited in claim 32, wherein the search query comprises  
21 a content-based search query having one or more content features.

22

23           **35.** A system as recited in claim 32, wherein the information retrieval  
24 unit employs both content-based information retrieval and semantic-based  
25 information retrieval.

1  
2       **36.** A system as recited in claim 32, wherein the information retrieval  
3 unit comprises:

4             a query handler to handle both keyword-based queries having one or more  
5 search keywords and content-based queries having one or more content features of  
6 a multimedia object; and

7             a feature and semantic matcher to identify at least one of (1) first  
8 multimedia objects having keywords that match the search keywords from a  
9 keyword-based query, and (2) second multimedia objects having content features  
10 similar to the content features of a content-based query.

11  
12       **37.** A system as recited in claim 32, wherein the relevance feedback unit  
13 employs both feature-based relevance feedback and semantic-based relevance  
14 feedback.

15  
16       **38.** A system as recited in claim 32, wherein:

17             the search query comprises a keyword-based search query having at least  
18 one keyword; and

19             in an event that a particular multimedia object is deemed relevant by the  
20 user and is not yet annotated with the keyword, the annotation unit adds the  
21 keyword to the particular multimedia object.

22  
23       **39.** A system as recited in claim 32, wherein:

24             the search query comprises a keyword-based search query having at least  
25 one keyword; and

1           in an event that a particular multimedia object is deemed relevant by the  
2 user and is already annotated with the keyword, the annotation unit strengthens an  
3 association between the keyword and the particular multimedia object.

4  
5           **40.** A system as recited in claim 32, wherein:

6           the search query comprises a keyword-based search query having at least  
7 one keyword; and

8           in an event that a particular multimedia object is deemed irrelevant by the  
9 user and is already annotated with the keyword, weakening an association between  
10 the keyword and the particular multimedia object.

11  
12           **41.** A system as recited in claim 32, wherein:

13           the search query comprises a keyword-based search query having at least  
14 one keyword; and

15           in an event that a particular multimedia object is deemed irrelevant by the  
16 user and is already annotated with the keyword, removing the keyword from the  
17 particular multimedia object.

18  
19           **42.** An image retrieval system as recited in claim 32, wherein the  
20 relevance feedback unit comprises a feedback analyzer to train the system based on  
21 the user's feedback.